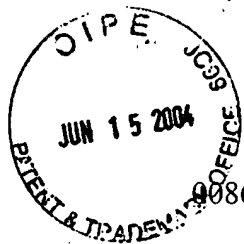


IFW



00862.022497.1

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	)	
	:	Examiner: Thao X. Le
KIYOFUMI SAKAGUCHI, ET AL.	)	
	:	Group Art Unit: 2814
Application No.: 10/687,743	)	
	:	
Filed: October 20, 2003	)	
	:	
For: THIN-FILM SEMICONDUCTOR	)	
DEVICE AND METHOD OF	:	
MANUFACTURING THE SAME	)	June 15, 2004

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

LETTER

Sir:

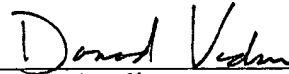
Enclosed for the Examiner's consideration is a copy of an Office Action dated March 1, 2004, in co-pending U.S. Application No. 10/059,144, and a copy of an Office Action dated March 10, 2004, in co-pending U.S. Application No. 10/059,171.

The documents cited in the Office Actions were previously cited in the May 24, 2004 Information Disclosure Statement. In addition, the U.S. Publications corresponding to U.S. Application Nos. 10/059,144 and 10/059,171 were previously cited in the May 24, 2004 Information Disclosure Statement. Accordingly, a Form PTO-1449 does not accompany this Letter.

No fee is believed due, however, the Commissioner is hereby authorized to charge any fee which may be required in connection with this paper to Deposit Account No. 06-1205.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our address given below.

Respectfully submitted,



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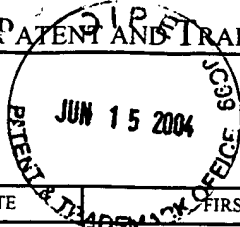
Attorney for Applicants  
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# UNITED STATES PATENT AND TRADEMARK OFFICE



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/059,144	01/31/2002	Takao Yonehara	00862.022498	5995

5514 7590 03/01/2004  
FITZPATRICK CELLA HARPER & SCINTO  
30 ROCKEFELLER PLAZA  
NEW YORK, NY 10112

EXAMINER

KEBEDE, BROOK

ART UNIT PAPER NUMBER

2823

DATE MAILED: 03/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

FORMAL DRAWING  
CORRECTION REQUIRED  
FILED

00862-022498

GKN

6/1/04

3/1/04

3/10/04

## Office Action Summary

JUN 15 2004

Application No.

20/059,144

Examiner

Brook Kebede

Applicant(s)

YONEHARA ET AL.

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 03 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 11 and 12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 10 is/are rejected.
- 7) ☒ Claim(s) 8 and 9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☒ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

**DETAILED ACTION***Election/Restrictions*

1. Applicants' election with traverse of the Group I invention, claim(s) 1-10 in the response filed on November 3, 2003, is acknowledged. The traversal is on the ground(s) that "there would not be undue burden in examining the two groups of claims in a single application. In particular, MPEP § 808 makes clear that in order to require restriction between independent or distinct inventions, reasons for insisting upon a restriction requirement, such as undue burden, must also be shown. In the present instance, it is not believed that there would be undue burden in examining the two groups of claims in a single application, since the two groups of claims are not so different as would require a burden on the Examiner that is significantly beyond that of the normal burdens of examination." This is not found persuasive. A restriction requirement between one set of product claims and a set of process claims was issued in the Office action that was mailed on September 29, 2003. "Section 121 [of Title 35 USC] permits a restriction for 'independent and distinct inventions,' which the PTO construes to mean that the sets of claims must be drawn to separately patentable inventions." See *Applied Materials Inc. v. Advanced Semiconductor Materials* 40 USPQ2d 1481, 1492 (Fed. Cir 1996)(Archer, C.J., concurring in-part and dissenting in-part). A product and the process of making the product are "two independent, albeit related inventions." See *In re Taylor*, 149 USPQ 615, 617 (CCPA 1966). "When two sets of claims filed in the same application are patentably distinct or represent independent inventions, the examiner is to issue a restriction requirement." See *In re Berg*, 46 USPQ2d 1226, 1233 n.10 (Fed. Cir. 1998).

The examiner, in issuing a restriction requirement, must demonstrate "one way distinctiveness." *Applied Materials Inc.* at 1492. As stated within the restriction requirement, "inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make other and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f))." In this application, the examiner restricted the product claims from the process claims on the grounds that "the product as claimed can be made by another and materially different process such as a process wherein ion implantation process can be performed instead of using pressure of a fluid during separation step of separating the member at separation layer in order to process device of Group II, (i.e., Smart Cut process)" and that, as a result, a restriction was necessary.

In addition to one way distinctiveness, the examiner must show "why it would be a burden to examine both sets of claims." *Applied Materials Inc.* at 1492. "A serious burden on the examiner may be *prima facie* shown if the examiner shows by appropriate explanation either separate classification, separate status in the art, or a different field of search." MPEP 803. An explanation was provided in the restriction requirement. Specifically, in addition to being distinct, the examiner indicated that restriction is proper because the product claims and the process claims "have acquired a separate status in the art."

The criteria of distinctness and burdensomeness have been met, as demonstrated hereinabove. Accordingly, the restriction requirement in this application is still deemed proper and is therefore **made FINAL**.

Art Unit: 2823

2. Claims 11 and 12 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention, the requirement having been traversed in the response filed on November 3, 2003.

***Priority***

3. Acknowledgment is made of applicants' claim for foreign priority based on an application filed in Japan on January 31, 2001. It is noted, however, that applicant has not filed a certified copy of the 2001-023847 application as required by 35 U.S.C. 119(b).

***Status of the Claims***

4. Claims 1-12 are pending in the application.
5. Claims 11 and 12 are withdrawn from further consideration by the examiner as indicated in Paragraph 2 herein above.
6. Claims 1-10 are treated on the merits as set forth herein below.

***Drawings***

7. Figures 6A-6C should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

***Specification***

8. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: --METHOD OF MANUFACTURING THIN-FILM SEMICONDUCTOR DEVICE--.

### *Claim Objections*

9. Claims 1 and 10 are objected to because of the following informalities:

Claim 1 recites the limitation "the step of preparing a member" in line 3. The Examiner suggests to change "**the** step of preparing a member" to -- a step of preparing a member-- in order to establish proper antecedent basis. Appropriate correction is required.

Claim 1 recites the limitation "the separation step of separating" in line 6. The Examiner suggests to change "**the** separation step of separating" to -- a separation step of separating-- in order to establish proper antecedent basis. Appropriate correction is required.

Claim 1 recites the limitation "the chip forming step" in line 8. The Examiner suggests to change "**the** chip forming step" to -- a chip forming step-- in order to establish proper antecedent basis. Appropriate correction is required.

Claim 10 recites the limitation "the step of preparing a member" in line 3. The Examiner suggests to change "**the** step of preparing a member" to -- a step of preparing a member-- in order to establish proper antecedent basis. Appropriate correction is required.

Claim 10 recites the limitation "the chip forming step" in line 6. The Examiner suggests to change "**the** chip forming step" to -- a chip forming step-- in order to establish proper antecedent basis. Appropriate correction is required.

Claim 10 recites the limitation "the separation step" in line 8. The Examiner suggests to change "**the** separation step" to -- a separation step-- in order to establish proper antecedent basis. Appropriate correction is required.

### *Double Patenting*

10. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or



improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

11. Claims 1-7 and 10 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-19 of U.S. Patent No. 6,677,183. Although the conflicting claims are not identical, they are not patentably distinct from each other because of the following reasons:

Re claim 1, the scope of the claimed limitation of the instant application is essentially the same as the claimed limitations of claims 1 and 15 of U.S. Patent No. 6,677,183. The limitations include a method of manufacturing a thin-film semiconductor device, comprising: the step of preparing a member having a semiconductor film with a semiconductor element semiconductor integrated circuit on a separation layer (see Claim 1, lines 1-5); the separation step of separating the member at the separation layer by a pressure of a fluid (see Claim 1, lines 8-13); and the chip forming step after the separation step, forming the semiconductor film into chips (see Claim 15, lines 1-2).

Re claim 2, as applied to claim 1 above, the scope of the claimed limitation of the instant application is essentially the same as the claimed limitations of claims 1 and 15 of U.S. Patent No. 6,677,183. In addition, the limitations wherein the member is obtained by forming a porous layer on a surface of a semiconductor substrate, forming the semiconductor film on a surface of

the porous layer, and then forming the semiconductor element and/or semiconductor integrated circuit is claimed in Claim 3 of U.S. Patent No. 6,677,183 (see Claim 3, lines 1-5).

Re claim 3, as applied to claims 1 and 2 above, the scope of the claimed limitation of the instant application is essentially the same as the claimed limitations of claims 1, 3, and 15 of U.S. Patent No. 6,677,183. Further the limitation, wherein the semiconductor film is formed on the surface of the porous layer after forming a protective film on inner walls of pores in the porous layer is claimed in Claim 4 of U.S. Patent No. 6,677,183 (see Claim 4, lines 1-6).

Re claim 4, as applied to claim 1 above, the scope of the claimed limitation of the instant application is essentially the same as the claimed limitations of the instant application is essentially the same as the claimed limitations of claims 1 and 15 of U.S. Patent No. 6,677,183. Furthermore, the limitation, wherein the member is obtained by forming the semiconductor element and/or semiconductor integrated circuit on a surface of a semiconductor substrate and implanting ions from the surface side to a predetermined depth to form the separation layer is claimed in Claim 18 of U.S. Patent No. 6,677,183 (see Claim 18, lines 12-16).

Re claim 5, as applied to claims 1 and 2 above the scope of the claimed limitation of the instant application is essentially the same as the claimed limitations of claims 1, 3, and 15 of U.S. Patent No. 6,677,183. Further the limitation, wherein the semiconductor substrate is a single-crystal silicon substrate or a compound semiconductor substrate is claimed in Claim 5 of U.S. Patent No. 6,677,183 (see Claim 5, lines 1-3).

Re claim 6, as applied to claims 1 and 4 above, the scope of the claimed limitation of the instant application is essentially the same as the claimed limitations of claims 1, 15 and 18 of U.S. Patent No. 6,677,183. In addition, the limitation wherein the semiconductor substrate is a

single-crystal silicon substrate or a compound semiconductor substrate is claimed in Claim 5 of U.S. Patent No. 6,677,183 (see Claim 5, lines 1-3).

Re claim 7, as applied to claims 1, 2 and 5 above, the scope of the claimed limitation of the instant application is essentially the same as the claimed limitations of claims 1, 3, and 15 of U.S. Patent No. 6,677,183. Further, the limitation wherein the separation step is executed by applying the pressure of the fluid to the separation layer also claimed in Claims 10, 12 and 13 of U.S. Patent No. 6,677,183 (see Claim 10, lines 1-6, Claim 12, lines 1-3, Claim 13, lines 1-3).

Re claim 10, the scope of the claimed limitation of the instant application is essentially the same as the claimed limitations of claims 1 and 15 of U.S. Patent No. 6,677,183. The limitations include a method of manufacturing a thin-film semiconductor device, comprising: the step of preparing a member having a semiconductor film with a semiconductor element and/or semiconductor integrated circuit on a separation layer (see Claim 1, lines 8-13); the chip forming step of forming the member into chips in desired regions; and the separation step of, after the chip forming step, separating the member at the separation layer (see Claim 15, lines 1-2).

Therefore, the conflicting claims are not patentably distinct from each other.

***Allowable Subject Matter***

12. Claims 8 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record neither anticipates nor renders obvious the claimed subject matter of the instant application as a whole either taken alone or in combination, in particular, prior art

of record does not teach "wherein after the separation step, the separation layer remaining on the semiconductor film side is removed, and then, the chip forming step is executed," as recited in claim 8 and "wherein after the separation step and the chip forming step, the step of removing the separation layer remaining on the semiconductor film side is executed," as recited in claim 9.

### ***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure Fonstad, Jr. et al. (US/6,455,398), Nakagawa et al. (US/6,500,731), Fukunaga (US/6,602,761), and Iwane et al. (US/6,682,9900) also disclose similar inventive subject matter.

Fonstad, Jr. et al. (US/6,455,398) discloses method of bonding a silicon substrate to group III-V material substrate, the method includes annealing the substrate and thinning the substrate.

Nakagawa et al. (US/6,500,731) disclose a method of fabricating a semiconductor device a method includes forming a porous separation layer having plurality semiconductor layers which the semiconductor device separately formed on each the semiconductor layers.

Fukunaga (US/6,602,761) discloses process for fabricating an SOI substrate and the process includes forming single crystal silicon substrate and anodizing the single silicon substrate in order to form porous regions.

Iwane et al. (US/6,682,9900) disclose separation method of semiconductor layer and producing a solar cell.

However, the prior art fail to anticipate or render obvious the claimed limitation of the instant application as recited in claims 8 and 9 either taken alone or in combination.

*Correspondence*

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brook Kebede whose telephone number is (571) 272-1862. The examiner can normally be reached on 8-5 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (571) 272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Brook Kebede  
Examiner  
Art Unit 2823

*Brook Kebede*

BK  
February 2, 2004

# **Notice of References Cited**

Application/Control No.

10/059,144

Applicant(s)/Patent Under  
Reexamination  
YONEHARA ET AL.

Examiner

Brook Kebede

Art Unit

2823

Page 1 of 1

## **U.S. PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-6,455,398	09-2002	Fonstad et al.	438/459
	B	US-6,500,731	12-2002	Nakagawa et al.	438/455
	C	US-6,602,761	08-2003	Fukunaga, Takeshi	438/459
	D	US-6,677,183	01-2004	Sakaguchi et al.	438/113
	E	US-6,682,990	01-2004	Iwane et al.	438/458
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

## **FOREIGN PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

## **NON-PATENT DOCUMENTS**

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

FORM PTO 1449 (modified)

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICELIST OF REFERENCES CITED BY APPLICANT(S)  
(Use several sheets if necessary)

ATTY DOCKET NO.

00862.022498

APPLICATION NO.

Not Yet Assigned

APPLICANT

Taka Yonehara, et al.

FILING DATE

Currently herewith

GROUP

Not Yet Assigned

## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
Bu	5,206,749	4/27/93	Zavracky et al.	359	59	
Bu	5,256,562	10/26/93	Vu et al.	437	86	
Bu	5,811,348	9/22/98	Matsushita, et al.	438	455	
Bu	6,107,213	8/22/00	Tayanaka, et al.	438	762	
Bu	5,985,742	11/16/99	Henley, et al.	438	515	
Bu	5,856,229	1/5/99	Sakaguchi, et al.	438	406	

## FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES/NO/ OR ABSTRACT
Bu	9-312349	12/2/97	Japan			Abstract
Bu	886 300	12/23/98	EP			

## OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)


EXAMINER

Brodie Kebede

DATE CONSIDERED

2/2/2004

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Sheet 1 of 1

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

ATTY DOCKET NO. 00862.022498.

APPLICATION NO 10/059,144

LIST OF REFERENCES CITED BY APPLICANT(S)  
(Use several sheets if necessary)

APPLICANT TAKAO YONEHARA, et al.

FILING DATE January 31, 2002

GROUP 2812

## U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
BU	6,075,280	06/13/00	Yung et al.	257	620	
BU	6,136,668	10/24/00	Tamaki, et al.	438	462	
BU	6,186,384	02/13/01	Sawada	225	2	
BU	6,465,329	10/15/02	Glenn	438	462	
BU	2002/0076904	06/20/02	Imler	438	462	
BU	2002/0100941	08/01/02	Yonehara, et al.	257	359	

## FOREIGN PATENT DOCUMENTS

DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES/NO/ OR ABSTRACT

## OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)


EXAMINER

Brown Keshel

DATE CONSIDERED

2/2/2004

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE

AUG 19 2002

PRIORITY DOCKET NO. 00862.022498

APPLICATION NO. 10/059,144

LIST OF REFERENCES CITED BY APPLICANT(S)  
(Use several sheets if necessary)

APPLICANT TAKAO YONEHARA, et al.

FILING DATE January 31, 2002

GROUP 2812

## U.S. PATENT DOCUMENTS

*EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
Bu	6,190,937	02/20/2001	Nauagawa, et al.	438	67	
Bu	6,222,513	03/10/1998	Howard, et al.	345	84	
Bu	6,258,698	07/10/2001	Iwasaki, et al.	438	455	
Bu	6,306,729	10/23/2001	Sauaguchi, et al.	438	458	
Bu	6,331,208	12/18/2001	Nishida, et al.	117	89	
Bu	6,342,433	01/29/2002	Ohmi, et al.	438	455	
Bu	6,382,292	05/07/2002	Ohmi, et al.	156	584	

## FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES/NO/ OR ABSTRACT
Bu	EP 1 122 794	08/08/2001	Europe			
Bu	EP 858 110	08/12/1998	Europe			
Bu	EP 849 788	06/24/1998	Europe			
Bu	JP 11-316397	11/16/1999	Japan	G02F		Abstract

## OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)

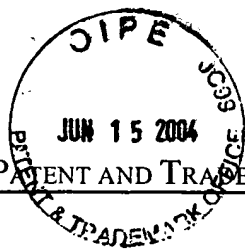
Bu	Shimoda, T., et al, "Surface Free Technology By Laser Annealing (SUFTLA)" International Electron Devices Meeting 1999. IEDM. Technical Digest. Washington, DC, Dec. 5 to 8, 1999, New York, NY: IEEE, US, August 1, 1999 (1999-08-01), pages 289 to 292, XP000933199 ISBN: 0-7803-5411-7.

EXAMINER BROOK Kebede

DATE CONSIDERED

2/2/2004

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/059,171	01/31/2002	Takao Yonehara	00862.022499	6512

5514 7590 03/10/2004

FITZPATRICK CELLA HARPER & SCINTO  
30 ROCKEFELLER PLAZA  
NEW YORK, NY 10112

EXAMINER

NGUYEN, THANH T

ART UNIT PAPER NUMBER

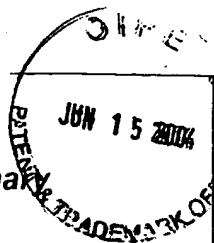
2813

DATE MAILED: 03/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

00862.022499  
GKN  
6/10/04  
3/16/04  
3/23/04  
GK

**Office Action Summary**



Application No.

10/059,171

Applicant(s)

YONEHARA ET AL.

Examiner

Thanh T. Nguyen

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 December 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) 10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4 and 7-9 is/are rejected.
- 7) ☒ Claim(s) 2,3 and 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1/31/02, 8/19/02, 1/10/03
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

Claim 10 is withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention, the requirement having been traversed in Paper mailed 2/15/03.

Applicant's election with traverse of Group I, claims 1-9 drawn to a method claims is acknowledged. The traversal is on the ground(s) that the subject matter of all claims 1-10 is sufficiently related that a thorough search for the subject matter of any one group of the claims would encompass a search for the subject matter of the remaining claims. This is not found persuasive because claims 10 would require further search and for the reason of the last Office Action. The requirement is still deemed proper and is therefore made FINAL.

### ***Priority***

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119 (a)-(d). The certified copy has been received.

### ***Information Disclosure Statement***

The information disclosure statement filed on 1/31/02, 8/19/02, 1/10/03 has been considered.

### ***Specification***

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

*Oath/Declaration*

Oath/Declaration filed on 1/31/02 has been considered.

*Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 7-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Yamazaki et al. (U.S. Patent No. 5,757,456).

Referring to figures 5a-5d, Yamazaki et al. teaches a method of manufacturing a display device, comprising:

The step of preparing a member having, on a separation layer (32), a semiconductor film (34/35 silicon) having a first region with a switching element (8) and a second region with a peripheral circuit (7);

The step of forming an image display portion (18) on the first region; and

The separation step of separating the first and second regions from the member together with the image display portion (see figures 5c-5d, separating the peeling layer (32) and the substrate from the first and second regions).

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Regarding to claim 4, the member is obtained by forming the first and second regions on the surface of a substrate and implanting ions from the surface side to a predetermined depth to form the separation layer (see col. 7, lines 11-18).

Regarding to claim 7, the separation step is executed by injecting gas to or near a side surface of the separation layer (see figure 5c-5d, col. 7, lines 52-67, col. 8, lines 1-13).

Regarding to claim 8, separation step is executed under static pressure (see col. 7, lines 55-56).

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 4, 6, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki et al. (U.S. Patent No. 5,757,456) as applied to claims 1, 7-8 above in view of Zhang (U.S. Patent No. 6,627,487).

Referring to figures 5a-5d, Yamazaki et al. teaches a method of manufacturing a display device, comprising:

The step of preparing a member having, on a separation layer (32), a semiconductor film (34/35 silicon) having a first region with a switching element (8) and a second region with a peripheral circuit (7);

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The step of forming an image display portion (18) on the first region; and

The separation step of separating the first and second regions from the member together with the image display portion (see figures 5c-5d, separating the peeling layer (32) and the substrate from the first and second regions).

Regarding to claim 4, the member is obtained by forming the first and second regions on the surface of a semiconductor substrate and implanting ions from the surface side to a predetermined depth to form the separation layer (see col. 7, lines 11-18).

Regarding to claim 7, the separation step is executed by injecting gas to or near a side surface of the separation layer (see figure 5c-5d, col. 7, lines 52-67, col. 8, lines 1-13).

Regarding to claim 8, separation step is executed under static pressure (see col. 7, lines 55-56).

However, the reference does not teaches the semiconductor substrate is a single-crystal silicon substrate, and reuse the remaining member after the separation steps.

Zhang teaches forming a substrate by using a single-crystal silicon or glass (see col. 1, lines 14-17).

Therefore, it would have been obvious to a person of ordinary skill in the requisite art at the time of the invention was made would substrate by using a single-crystal silicon instead of glass as in process of Yamazaki et al. as taught by Zhang because determining the optimum material for the layer only involved routine skill in the art.

It is obvious to reuse the remaining member after the separation step because it would reduced processing cost of forming the LCD.

*Allowable Subject Matter*

Claims 2-3, 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

None of the prior art taught or suggested the combination of forming a porous layer film on the member then forming a semiconductor film, and then forming the first and second regions incorporated into claim 1.

The additional references cited in form PTO-892 show further method of manufacturing a semiconductor film. Specifically references (Ishikawa, U.S. 5,582,963) are particularly relevant to claimed manufacture which recited in claims 1-9. Ishikawa teaches method of manufacturing a display device, comprising: The step of preparing a member having, on a separation layer (401), a semiconductor film (404) having a first region with a switching element (1406) and a second region with a peripheral circuit (1407); The step of forming an image display portion (1403) on the first region; and The separation step of separating the first and second regions from the member together with the image display portion (see figures 4a-4b). This reference is deemed relevant and should be carefully reviewed before any amendment is filed.

*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanh Nguyen whose telephone number is (571) 272-1695, or by



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Email via address Thanh.Nguyen@uspto.gov. The examiner can normally be reached on Monday-Thursday from 6:00AM to 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Whitehead, can be reached on (571) 272-1702. The fax phone number for this Group is (703) 872-9306.

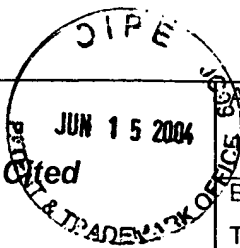
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956 (See **MPEP 203.08**).

A handwritten signature in black ink, appearing to read 'Thanh', with a stylized flourish extending from the end.

Thanh Nguyen  
Patent Examiner  
Patent Examining Group 2800

TTN

**Notice of References Cited**



Application/Control No.

40/059,171

Examiner

Thanh T. Nguyen

Applicant(s)/Patent Under  
Reexamination  
YONEHARA ET AL.

Art Unit

2813

Page 1 of 1

**U.S. PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-6,682,963	01-2004	Ishikawa, Akira	438/149
	B	US-5,757,456	05-1998	Yamazaki et al.	349/151
	C	US-6,627,487	09-2003	Zhang, Hongyong	438/166
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

**FOREIGN PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

**NON-PATENT DOCUMENTS**

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

FORM PTO 1449 (modified)  U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE  LIST OF REFERENCES CITED BY APPLICANT(S) (Use several sheets if necessary)				ATTY DOCKET NO. <b>00862.022499</b>		APPLICATION NO. <b>Not Yet Assigned</b>	
				APPLICANT <b>Takao Yonehara, et al.</b>			
				FILING DATE <b>Currently herewith</b>		GROUP <b>Not Yet Assigned</b>	

U.S. PATENT DOCUMENTS							
EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE	
TW	5,206,749	4/27/93	Zavracky et al.	359	59	<div style="writing-mode: vertical-rl; transform: rotate(180deg);">           971 U.S. PTO            10/059171            01/31/03         </div>	
	5,256,562	10/26/93	Vu et al.	437	86		
	5,811,348	9/22/98	Matsushita, et al.	438	455		
	6,107,213	8/22/00	Tayanaka, et al.	438	762		
	5,985,742	11/16/99	Henley, et al.	438	515		
TN	5,856,229	1/5/99	Sakaguchi, et al.	438	406		

FOREIGN PATENT DOCUMENTS							
EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES/NO/ OR ABSTRACT	
TN	9-312349	12/2/97	Japan	<div style="writing-mode: vertical-rl; transform: rotate(180deg);">           971 U.S. PTO            10/059171            01/31/03         </div>	<div style="writing-mode: vertical-rl; transform: rotate(180deg);">           971 U.S. PTO            10/059171            01/31/03         </div>	Abstract	
TN	886 300	12/23/98	EP				

OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)		

EXAMINER <i>[Signature]</i>	DATE CONSIDERED <b>3/4/04</b>
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FORM PTO 1449 (modified) U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE LIST OF REFERENCES CITED BY APPLICANT(S) (Use several sheets if necessary)				ATTY DOCKET NO. <b>00862.022499</b>		APPLICATION NO. <b>10/059,171</b>	
AUG 19 2002				APPLICANT <b>TAKAO YONEHARA, et al.</b>			
FILING DATE <b>January 31, 2002</b>				GROUP <b>2871</b>			

U.S. PATENT DOCUMENTS							
*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
TW		6,190,937	02/20/2001	Nauagawa, et al.	438	67	X
		6,222,513	03/10/1998	Howard, et al.	345	84	
		6,258,698	07/10/2001	Iwasaki, et al.	438	455	
		6,306,729	10/23/2001	Sauaguchi, et al.	438	458	
		6,331,208	12/18/2001	Nishida, et al.	117	89	
		6,342,433	01/29/2002	Ohmi, et al.	438	455	
TW		6,382,292	05/07/2002	Ohmi, et al.	156	584	

FOREIGN PATENT DOCUMENTS							
		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES/NO/ OR ABSTRACT
TW	EP	1 122 794	08/08/2001	Europe	X	X	X
	EP	858 110	08/12/1998	Europe			
	EP	849 788	06/24/1998	Europe			
TW	JP	11-316397	11/16/1999	Japan			

OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)	
TW	Shimoda, T., et al: "Surface Free Technology By Laser Annealing (SUFTLA)" International Electron Devices Meeting 1999. IEDM. Technical Digest. Washington, DC, Dec. 5-8, 1999, New York, NY: IEEE, US, Aug. 1, 1999 (1999-08-01), pages 289-292, XP000933199 ISBN: 0-7803-5411-7.

EXAMINER <i>[Signature]</i>	DATE CONSIDERED <b>3/4/04</b>
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO 1449 (modified)  U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE  LIST OF REFERENCES CITED BY APPLICANT(S) (Use several sheets if necessary)		ATTY DOCKET NO. <b>00862.022499.</b>		APPLICATION NO. <b>10/059,171</b>	
APPLICANT <b>TAKAO YONEHARA, et al.</b>					
FILING DATE <b>January 31, 2002</b>				GROUP <b>2871</b>	

U.S. PATENT DOCUMENTS							
EXAMINER INITIALS	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE	
<i>TN</i>     <i>TN</i>	6,075,280	06/13/00	Yung et al.	257	620	<del> <div style="width: 100%; height: 100%; border: 1px solid black;"></div> </del>	
	6,136,668	10/24/00	Tamaki, et al.	438	462		
	6,186,384	02/13/01	Sawada	225	2		
	6,465,329	10/15/02	Glenn	438	462		
	2002/0076904	06/20/02	Imler	438	462		
2002/0100941	08/01/02	Yonehara, et al.	257	359			

FOREIGN PATENT DOCUMENTS							
DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION YES/NO/ OR ABSTRACT		

OTHER DOCUMENT(S) (Including Author, Title, Date, Pertinent Pages, Etc.)		

EXAMINER <i>han</i>	DATE CONSIDERED <b>3/4/04</b>
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